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NetworkX: Python Software for the Analysis of Networks

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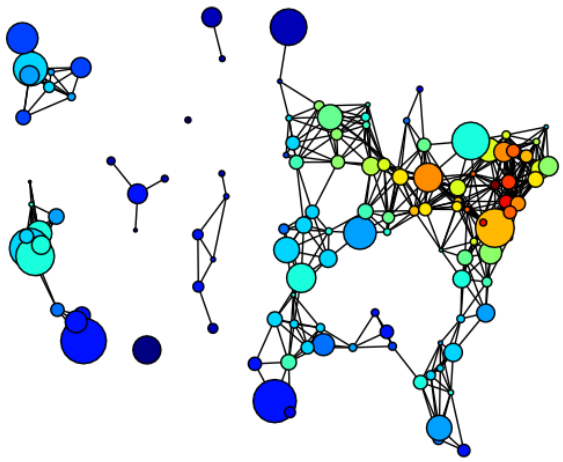
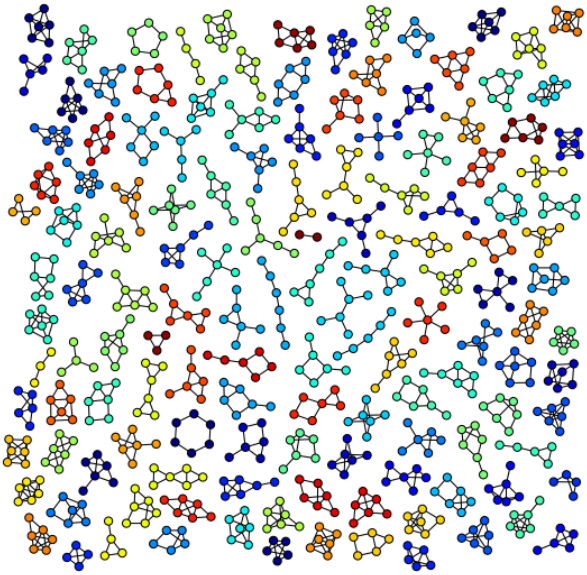
NetworkX is a software package for the creation, manipulation, and study of the structure, dynamics, and function of complex networks. The development of NetworkX was driven by multiple applications in social, technological, and biological networks but is not application specific. The potential audience for NetworkX includes: mathematicians, physicists, biologists, computer scientists, and social scientists.

NetworkX provides data structures for graphs or networks which are encoded as edges (connections, links, ties, arcs, bonds) between nodes (vertices, sites, actors). In addition many algorithms and measures from computer science and statistical physics, such as shortest path length, betweenness, and clustering are included.



Cities in the United States.

NetworkX is written in the Python programming language. Past experience has showed that



Atlas of connected graphs with 6 nodes or less.

Python maximizes productivity, power, platform independence and multidisciplinary scope. Our application test beds included large communication, social, data and biological networks. Python is also an excellent "glue" language, that is, it is easy to use existing code in other languages where appropriate. Equally important, Python is free, well-supported, and a joy to use.

NetworkX Features

- Nodes and edges can be "anything."
- Includes standard graph-theoretic and statistical functions
- Multi-platform: Linux, OSX, Windows
- Visualization via matplotlib, graphviz, VTK
- Includes many classic graphs and synthetic networks

NetworkX is free software [1]; you can redistribute it and/or modify it under the terms of the LGPL (GNU Lesser General Public License).

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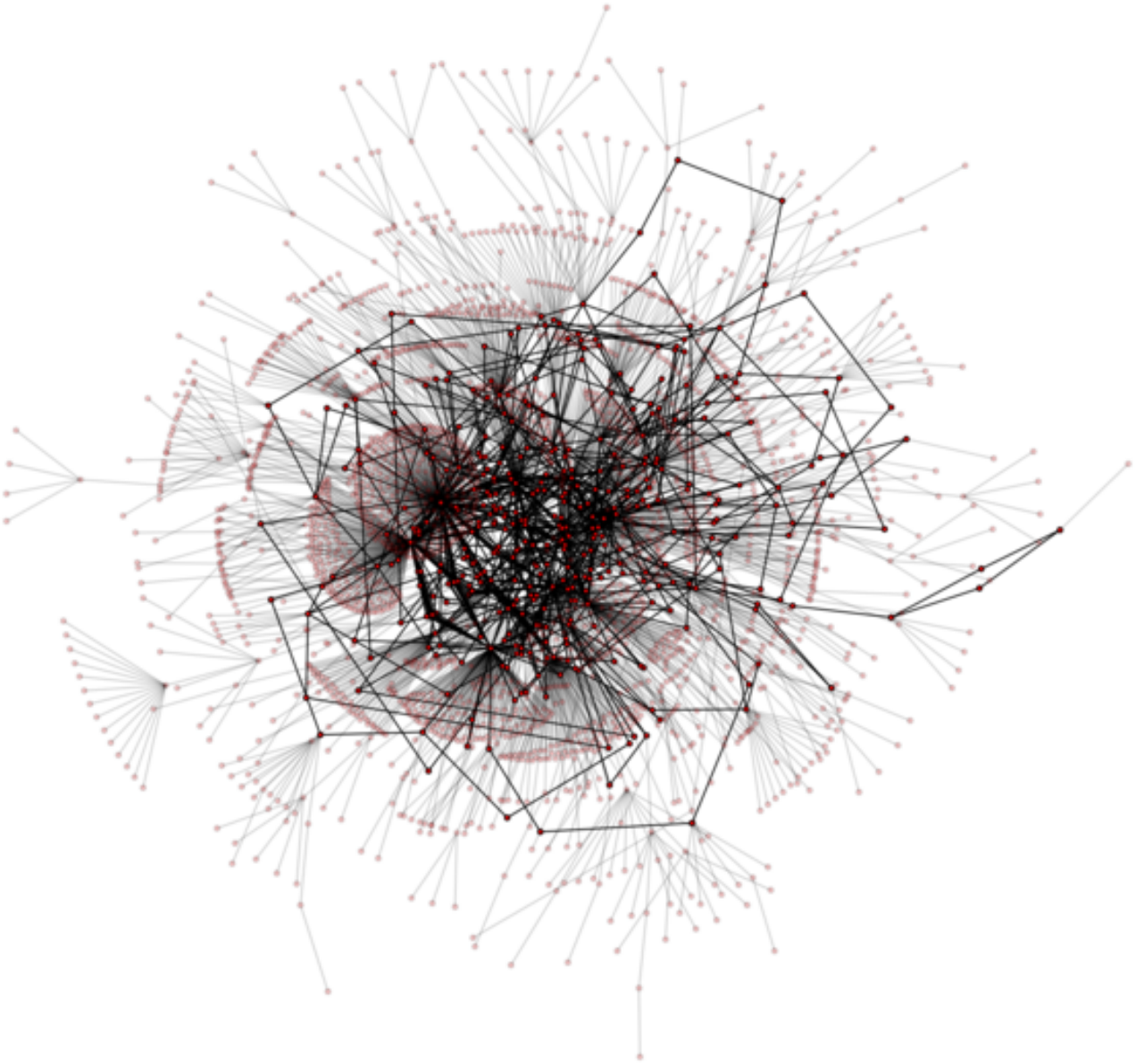

A part of the Internet Autonomous Systems network from 1999. The light shaded nodes and edges represent the part of the network that can be represented by a tree.

Acknowledgements

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References

[1] A. HAGBERG, D. SCHULT, AND P. SWART. NetworkX. http://networkx.lanl.gov/.